Glenn Research Center

Combustion of PTFE: The Effects of Gravity and Pigmentation on Ultrafine Particle Generation

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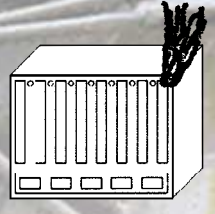
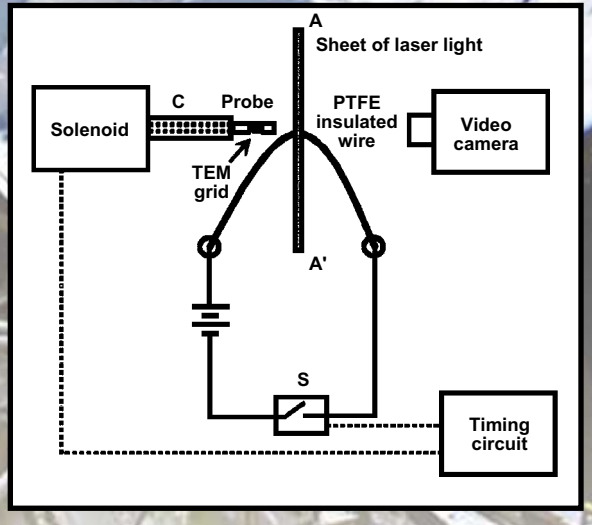
- Ultrafine particles produced from thermal degradation of PTFE (Teflon®) are extremely toxic
  - 30 minute lethality limit = 0.3 mg/m3 for PTFE smoke vs. 4500 mg/m3 for CO.
- Microgravity conditions affect time/temperature/concentration history in which particles are formed.
- Prototype problem: Short circuit/overheated PTFE-insulated wire.



- Experimental apparatus mounted inside NASA GRC drop frame.



- Nd: YAG laser coupled to frame w/optical fiber.